

وزارة التربية والتعليم و التعليم الفنى
الإدارة المركزية للتعليم العام
إدارة تنمية مادة الرياضيات

برعاية معالي وزير التربية والتعليم و التعليم الفنى

السيد الأستاذ/ محمد عبد اللطيف

وتوجيهات رئيس الإدارة المركزية للتعليم العام

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إشراف علمي

مستشار الرياضيات

أ/ منال عزقول

أداءات وتقييمات لمنهج تطبيقات الرياضيات لغات

للصف الثانى الثانوي "علمى"

الفصل الدراسى الأول

للعام الدراسي 2026 / 2027

الأسبوع العاشر

لجنة الإعداد

أ/ محمد عبد العاطى أ/ محمود السيد محمد أ/ عفاف جاد

ترجمة

أ/ محمود سليمان نظيم

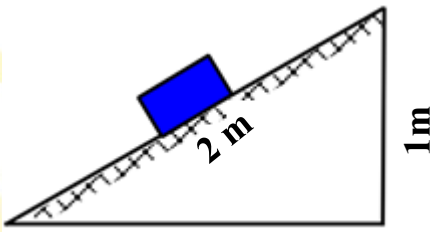
مراجعة الترجمة

أ/ شريف البرهامى أ/ عمرو فاروق

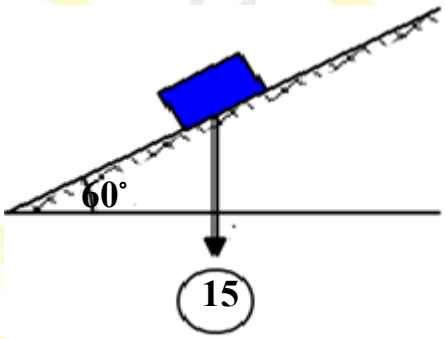
⑩ الأداء الصفي ـ الصف الثانى الثانوى ـ علمى ـ تطبيقات الرياضيات لغات ـ الأسبوع العاشر ⑩

(1) A body of weight 24 Newton was placed on a rough inclined plane and was about to slide. If the limiting friction force is 12 Newton, Find the measure of the angle of inclination of the plane to the horizontal.

(2) In the opposite figure:
If the body is about to move under the action of its weight only.
Find the coefficient of static friction between the body and the plane.



(3) In the opposite figure:
If the body is about to slide.
under the action of its weight only.
Find the magnitude of the limiting static friction force.
(where forces are measured in Newton)



(4) A body of weight 35 Newton was placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{4}{5}$, if the least force acting in the direction of the line of the greatest slope of the plane upward to preserve the equilibrium of the body is 12 Newton, find the measure of the angle of static friction between the body and the plane.

(5) A body of weight 169 Newton is placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{12}{13}$.
If the greatest force acting in the direction of the line of the greatest slope of the plane upward to preserve the body's equilibrium is 120 Newton, find the measure of the angle of static friction between the body and the plane.

(6) A body of weight 60 Newton is placed on a rough inclined plane and make an angle whose tangent is equal to $\frac{3}{4}$ with the horizontal. If the measure of the angle of static friction between the body and the plane is θ, where $\tan\theta = \frac{1}{8}$, find the smallest force acting in the direction of the line of greatest slope of the plane and preventing the body from sliding

(7) A body of weight 45 Newton is placed on a rough inclined plane and makes an angle its tangent $= \frac{3}{4}$ with the horizontal. If the measure of the angle of static friction between the body and the plane is θ, where $\tan\theta = \frac{1}{6}$. Find the greatest force acting in the direction of the line of the greatest slope of the plane and making the body about to move.

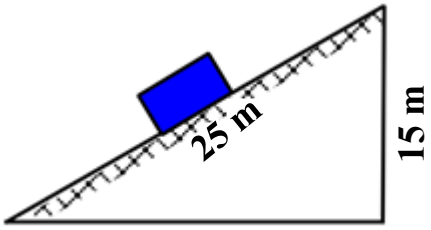
(8) A body of weight 12 Newtons was placed on a rough inclined plane and the body was about to slide, if the limiting friction force is $6\sqrt{3}$ Newton. Find the measure of the inclination angle of the plane to the horizontal.

(9) A body of weight 30 Newton was placed on a rough inclined plane. It was observed that the body was about to slide if the plane was inclined to the horizontal at an angle of measure 30°. If the angle of inclination of the plane was increased to 60°, find the magnitude of the least force that would affect the body parallel to the line of greatest slope of the plane and prevent it from sliding.

(10) In the opposite figure:

If the body is about to slide downward the plane.

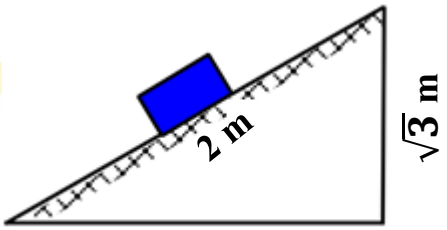
Find the coefficient of static friction between the body and the plane.



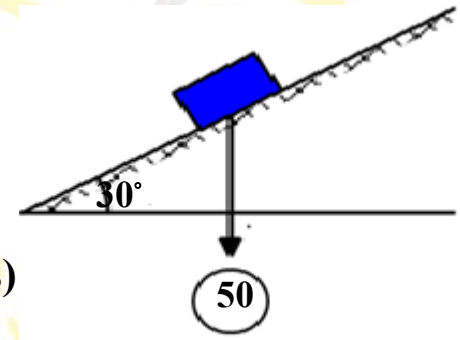
⑩ الأداء المنزلى ـ الصف الثانى الثانوى ـ علمى ـ تطبيقات الرياضيات لغات ـ الأسبوع العاشر ⑩

(1) A body of weight 19 Newton was placed on a rough inclined plane and was about to slide. If the limiting friction force is $8\sqrt{3}$ Newton. Find the measure of the angle of inclination of the plane to the horizontal.

(2) In the opposite figure:
If the body is about to move under the action of its weight only.
Find the coefficient of static friction between the body and the plane.



(3) In the opposite figure:
If the body is about to slide.
Find the magnitude of the limiting static friction force.
(Where the forces are measured in Newtons)



(4) A body of weight 169 Newton was placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{12}{13}$, if the least force acting in the direction of the line of the greatest slope of the plane upward to preserve the equilibrium of the body is 10 Newton, find the measure of the angle of static friction between the body and the plane.

(5) A body of weight 45 Newton is placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{4}{5}$.
If the greatest force acting in the direction of the line of the greatest slope of the plane upward to preserve the body's balance is 16 Newton, find the measure of the angle of static friction between the body and the plane.

(6) **A body of weight 45 Newton is placed on a rough inclined plane and make an angle whose tangent is equal to $\frac{3}{4}$ with the horizontal. If the measure of the angle of static friction between the body and the plane is θ ,where tan $\theta = \frac{1}{6}$, find the least force acting in the direction of the line of greatest slope of the plane and preventing the body from sliding.**

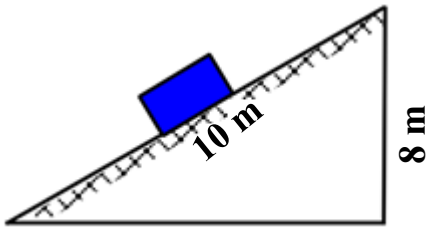
(7) **A body of weight 60 Newton is placed on a rough inclined plane and makes an angle its tangent = $\frac{3}{4}$ with the horizontal. If the measure of the angle of static friction between the body and the plane is θ, where tan $\theta = \frac{1}{8}$. Find the greatest force acting in the direction of the line of the greatest slope of the plane and making the body about to move.**

(8) **A body of weight 6 Newton was placed on a rough inclined plane and the body was about to slide, if the limiting friction force is $3\sqrt{3}$ Newtons, Find the measure of the inclination angle of the plane to the horizontal.**

(9) **A body of weight 30 Newton was placed on a rough inclined plane. It was observed that the body was about to slide if the plane was inclined to the horizontal at an angle of measure 30°. If the angle of inclination of the plane was increased to 60°, find the magnitude of the least force that would affect the body parallel to the line of greatest slope of the plane and prevent it from sliding.**

(10) In the opposite figure:

If the body is about to slide downward the plane, find the coefficient of static friction between the body and the plane.



First Group

(1) A body of weight 8 Newton was placed on a rough inclined plane and was about to slide. If the limiting friction force is 4 Newtons, Find the measure of the angle of inclination of the plane to the horizontal.

(2) A body of weight 40 Newton was placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{4}{5}$. If the least force acting in the direction of the line of the greatest slope of the plane upward to preserve the balance of the body is 15 Newtons, find the measure of the angle of static friction between the body and the plane.

(3) A body of weight 130 Newton is placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{12}{13}$. If the greatest force acting in the direction of the line of the greatest slope of the plane upward to preserve the body's balance is 70 Newton, find the measure of the angle of static friction between the body and the plane.

(4) A body of weight 100 Newtons is placed on a rough inclined plane inclined to the horizontal at an angle of its measure θ. If the least and greatest force parallel to the direction of the line of greatest slope of the plane and make the body in equilibrium are 60 and 680 Newton respectively. Find the coefficient of static friction between the body and the plane and the tangent of the angle of inclination of the plane to the horizontal.

(5) A body of weight 140 Newton on a rough inclined plane inclined to the horizontal at an angle of its sine = $\frac{3}{5}$, and a force acting in the direction of the line of greatest slope of the plane upwards affected on the body. If the coefficient of static friction is = $\frac{1}{5}$, Find the two limits between which the magnitude of force that makes the body in a state of equilibrium on the plane is confined.

Second Group

(1) A body of weight 20 Newton was placed on a rough inclined plane and was about to slide. If the limiting friction force is $10\sqrt{3}$ Newton, Find the measure of the angle of inclination of the plane to the horizontal

(2) A body of weight 52 Newton was placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{5}{13}$, If the least force acting in the direction of the line of the greatest slope of the plane upward to preserve the equilibrium of the body is 30 Newton, find the measure of the angle of static friction between the body and the plane.

(3) A body of weight 70 Newton is placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{4}{5}$. If the greatest force acting in the direction of the line of the greatest slope of the plane upward to preserve the body's balance is 70 Newton, find the measure of the angle of static friction between the body and the plane.

(4) A body of weight 169 Newton is placed on a rough inclined plane inclined to the horizontal at an angle of its measure θ. If the least and greatest force parallel to the direction of the line of greatest slope of the plane and make the body in equilibrium are 52 and 78 Newton respectively. Find the coefficient of static friction between the body and the plane and the tangent of the angle of inclination of the plane to the horizontal.

(5) A body of weight 80 Newton on a rough inclined plane inclined to the horizontal at an angle of its sine = $\frac{4}{5}$, and a force acting in the direction of the line of greatest slope of the plane upwards affected on the body.
If the coefficient of static friction is = $\frac{3}{5}$, find the two limits between which the magnitude of force that makes the body in a state of equilibrium on the plane is confined.

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Third Group

(1) A body of weight 40 Newton was placed on a rough inclined plane and was about to slide. If the limiting friction force is 20 Newton, find the measure of the angle of inclination of the plane to the horizontal.

(2) A body of weight 40 Newtons was placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{4}{5}$. If the least force acting in the direction of the line of the greatest slope of the plane upward to preserve the balance of the body is 15 Newton, find the measure of the angle of static friction between the body and the plane.

(3) A body of weight 91 Newtons is placed on a rough inclined plane inclined to the horizontal at an angle whose cosine is equal to $\frac{5}{13}$. If the greatest force acting in the direction of the line of the greatest slope of the plane upward to preserve the body's balance is 140 Newtons, find the measure of the angle of static friction between the body and the plane.

(4) A body of weight 140 Newton is placed on a rough inclined plane inclined to the horizontal at an angle of its measure θ. If the least and greatest force parallel to the direction of the line of greatest slope of the plane and make the body in equilibrium are 78 and 90 Newton respectively. Find the coefficient of static friction between the body and the plane and the tangent of the angle of inclination of the plane to the horizontal.

(5) A body of weight 169 Newton on a rough inclined plane inclined to the horizontal at an angle of its sine $= \frac{5}{13}$, and a force acting in the direction of the line of greatest slope of the plane upwards affected on the body. If the coefficient of static friction is $= \frac{1}{4}$, Find the two limits between which the magnitude of force that makes the body in a state of equilibrium on the plane is confined.